REMARKS

With this Response, claims 1, 18 and 19 are amended. Claims 25 is added. Claim 21 is cancelled. Therefore, claims 1-16, 18-19 and 22-25 are pending.

CLAIM REJECTIONS - 35 U.S.C. § 102/§ 103

Claims 1, 2 and 8 were rejected under 35 U.S.C. §102(b) as being anticipated by Krauss, (Ph.D. Dissertation entitled *Nanostructure Engineering: Quantized Magnetic Disk and Nanoimprint Lithography*, hereinafter "Krauss").

Applicant respectfully disagrees with the Examiner assertion that Krauss discloses, "separating the stamper from the resist film before the resist film is cooled below approximately a glass transition temperature of the resist film." Indeed, Applicant submits **Krauss discloses the exact opposite**, clearly stating,

> "following the compression molding, the **mold and wafer were kept under pressure while the platens cooled**, until the temperature dropped **below the PMMA's glass-transition temperature**." (Krauss, p. 83 lines 8-10, emphasis added)

Krauss, p. 83, lines 10-12 (cited in the rejection) explicitly describe what Krauss **did not do**. Applicant submits that an express statement in a reference disavowing subject matter included in Applicant's claim is the antithesis of anticipation. For at least these reasons, Applicant submits claims 1, 2 and 8 are not anticipated by Krauss. Applicant therefore requests removal of the 35 U.S.C. §102(b) rejection of these claims and all dependents thereof.

Claims 1-4, 8, 11, 14 and 15 were rejected under 35 U.S.C. §102(b) as being anticipated by or, in the alternative under 35 U.S.C. 103(a) as obvious over Tan (J. Vac. Sci. Technol. B. 16(6) Nov/Dec 1998).

Tan Fails to Anticipate Claim 1

Applicant has amended claim 1 to recite, in part, "wherein the stamper is flat" to more clearly describe a stamper as depicted in Figure 1B and described in para. [0038].

In contrast, Tan merely discloses two methods employing a roller (p. 3926, Sec. III para. 1-3). Applicant submits Tan's methods, utilizing either a "cylinder mold" (p. 3926, Sec. III para. 1) or a roller to cause a "deformation," in a mold (p. 3926, Sec. III para. 2) are distinct from the

"**flat** stamper" claimed in the instant application because cylinder molds and deformed molds are not flat.

As such, Applicant submits claim 1 is not anticipated by Tan under 35 U.S.C. §102(b). Applicant has added new claim 25 to further recite that the imprinting is to "simultaneously produce a pattern of trench areas and plateau areas over an area of the resist film approximately equal the surface area of the stamper," which is similarly distinguished from Tan's roller methods.

For at least these reasons, Applicant submits Tan fails to anticipate claims 1-4, 8, 11, 14, 15 and 25. Applicant therefore request removal of the 35 U.S.C. §102(b) rejection of these claims.

Claim 1 is Nonobvious in view of Tan

Applicant disagrees with the contention that separating a substantially flat stamper from a resist film "before the resist film is cooled below approximately a glass transition temperature of the resist film" is obvious in view of Tan's teaching to optimize the temperature of both components … within a wide temperature range."

First, Applicant reminds the Examiner that a "result-effective variable" is narrowly interpreted to be only that which "achieves a **recognized result**, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (emphasis added). Based on this requirement, Tan's mere recitation that "temperature was varied between 120 and 200 °C," "scan speed ranged from 0.5 to 1.5 cm/min" and "estimated pressure was changed from 300 to 4800 psi" (p. 3927) **does not provide a basis to achieve any recognized result absent some response characterization**. Thus, Applicant is of the position that a result-effective variable requires more than a disclosure that a lot of variable values were tried and instead requires some guidance as to what result was achieved when particular variable values were tried.

Second, Applicant notes Tan's roller is disclosed to be "different from flat nanoimprint, where the entire resist, heated above Tg, is imprinted simultaneously and the pressure is applied until the resist is cooled down." (p. 3926, Sec. III, para. 3). As such, experiments performed in Tan's system, unless described in a non-convoluted manner (e.g., providing some means of discounting roller scan and rotation rate), have little applicability to the presently claimed method utilizing a flat stamper.

Applicant therefore request removal of the 35 U.S.C. §103 rejection of claim 1 and all dependents thereof.

CLAIM REJECTIONS - 35 U.S.C. § 103

Claims 3, 4, 10, 11, 12 and 13 were rejected under 35 U.S.C. §103(a) as obvious over Krauss.

Applicant submits claims 3, 4, 10, 11, 12 and 13 are nonobvious in view of Krauss because these claims depend upon claim 1 and Krauss fails to teach all the elements of claim 1 for at least those reasons already provided. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claims 5 and 6 were rejected under 35 U.S.C. §103(a) as obvious over Tan, in view of US Patent No. 5,956,216 issued to Chou (hereinafter "Chou'216").

Applicant submits Chou '216 fails to cure the deficiencies already noted in Tan. The combination of Tan and Chou '216 fails to teach all the elements of claims 5 and 6 at least for the reason that claims 5 and 6 depend upon claim 1. Applicant therefore submits claims 5 and 6 are nonobvious in view of Tan and Chou and requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tan in view of Chou'216, further in view of US Patent No. 6,309,580 issued to Chou (hereinafter "Chou'580")

Applicant submits Chou '580 fails to cure the deficiencies already noted in Tan and Chou '216. The combination of Tan, Chou '216 and Chou '580 fails to teach all the elements of claim 7 for at least the reason that claim 7 depends upon claim 1. Applicant submits claim 7 is therefore nonobvious in view of Tan, Chou '216 and Chou '580 and requests removal of the 35 U.S.C. §103(a) rejection of this claim.

Claims 10, 12, 13 and 16 were rejected under 35 U.S.C. §103(a) as obvious over Tan.

Applicant submits claims 310, 12, 13 and 16 are nonobvious in view of Tan for at least the reason that claims 10, 12, 13 and 16 depend upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claims 9, 18 and 21 were rejected under 35 U.S.C. §103(a) as obvious over Tan, in view of Heidari (J. Vac. Sci. Technol. B 18(6) Nov/Dec 2000).

Claim 9

Applicant submits Heidari fails to cure the deficiencies already noted in Tan. Applicant submits claim 9 is nonobvious in view of Tan and Heidari at least for the reason that claim 9 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claim 18

Applicant has amended claim 18 to be a dependent of claim 1. Tan and Heidari at least for the reason that claim 18 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claim 21

Applicant has canceled claim 21, rendering the rejection moot.

Claim 19 was rejected under 35 U.S.C. §103(a) as obvious over Tan in view of Heidari, further in view of Schneider (Applied Physics Letters, 77(18) Oct 2000).

Applicant has amended claim 19 to be a dependent of claim 1 and submits Schneider fails to cure the deficiencies already noted in Tan and Heidari. Applicant submits claim 19 is nonobvious in view of Tan, Heidari and Schneider at least for the reason that claim 19 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of this claim.

Claim 22 was rejected under 35 U.S.C. §103(a) as obvious over Tan in view of US Publication No. 2002/0025408 issued to Davis (hereinafter "Davis").

Applicant submits Davis fails to cure the deficiencies already noted in Tan. Applicant submits claim 22 is nonobvious in view of Tan and Davis for at least the reason that claim 22 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of this claim.

Claim 23 was rejected under 35 U.S.C. §103(a) as obvious over Tan in view of Chou'216 and Chou'580, further in view of US Patent No. 4,786,564 to Chen (hereinafter "Chen").

Applicant submits Chen fails to cure the deficiencies already noted in Tan, Chou '216 and Chou '580. Applicant submits claim 23 is nonobvious in view of Tan, Chou '216, Chou '580 and Chen for at least the reason that claim 23 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of this claim.

Claim 24 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tan in view of Chou'216, Chou'580 and Chen, further in view of Davis.

Applicant submits Davis fails to cure the deficiencies already noted in Tan, Chou '216, Chou '580 and Chen. Applicant submits claim 24 is nonobvious in view of Tan, Chou '216, Chou '580, Chen and Davis for at least the reason that claim 24 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of this claim.

Claims 1, 2, 8, 11, 12 and 22 were rejected under 35 U.S.C §103(a) as obvious over Davis.

Applicant notes the current rejection is substantially the same as that issued in the previous Office Action mailed, August 8, 2007, with the addition of responses directed to Applicant previously filed arguments.

Applicant reasserts that Davis is replete with statements that the resist is cooled below Tg **prior to** removing the resist from the mold to achieve such results and therefore is more than merely a "preferred embodiment," but rather an accurate depiction of the full scope of what is **disclosed** by Davis. The Examiner makes the inference:

> if claim 10 has scope which is more broad than claim 11, then it would appear that claim 10 must necessarily include in its scope cooling the compressed temperature to a temperature above the substrate glass transition temperature. (Office Action, p. 20)

Applicant submits the Examiner's inference is wholly irrelevant to a determination of **patentability** of the present claims. Patentability is dependent on a determination of what is **disclosed** in the prior art, not on the **scope** of claims in a reference. For this reason, merely arguing that a claim in a prior art reference may have a scope encompassing that of a claim of a

patent application under examination does not satisfy the disclosure requirements of a 35 U.S.C. §102/103 rejection.

Applicant next notes that the Examiner agrees that Davis' statement, "after placing the substrate in the mold the temperature thereof can be maintained…," (para. [0075]) is "tantamount to saying that the temperature can be varied in any way." (Office Action, p. 20) However, Applicant disagrees that "maintenance of the integrity of the surface features," "optimization of replication" and "enablement of substrate release from the mold" are "particular results." (Office Action p. 20) Applicant submits such results are merely a recitation of generally "good" results with no guidance given as **to how** "maintenance," "increases" or "decreases" of temperature may is to be done **to affect any particular ones of these results**. Applicant submits without some disclosure of **how** a result **responds** to various variable values, there is no basis for the variables to be deemed "result-effective."

Thus, Applicant remains of the position that the Davis' statement relied upon in the rejection of claims 1, 2, 8, 11, 12 and 22 amounts to no more than "anything can be done to achieve some good results." Applicant respectfully maintains such an uninformative, generic statement does not justify dismissing a claimed element as a "result-effective variable."

Supplemental Declaration as Evidence of Unexpected Result Provided Herewith

The declaration submitted herewith under 37 C.F.R. §1.132 as secondary evidence of non-obviousness rebuts the assertion made in the Office Action that claim 1, reciting in part, "separating the stamper from the resist film **before the resist film is cooled below approximately a glass transition temperature** of the resist film" is a *prima facie* obvious reordering of process steps disclosed in Davis.

The supplemental declaration submitted herewith corrects an oversight made in the declaration filed May 14, 2007 to include a warning as required by 35 U.S.C. §25.

Applicant submits the assertion in the Office Action that the "claims are not commensurate in scope with the evidence submitted" is a mischaracterization of the substance of declaration. Applicant disagrees with the Office Action's assertion that the nexus requirement is not met.

Applicant further submits the experiments undertaken were merely set forth in the declaration and the mere fact some worked better than others is not a basis for inferring what

results were unexpected. Nevertheless, for clarification, the supplemental declaration submitted herewith further states:

> It was a total surprise that there existed any temperature above the glass transition temperature at which good embossing and separation occurred without incurring reflow upon opening the mold before cooling to below the glass transition temperature. (Treves supplemental declaration, pg. 3, emphasis added)

As such, Applicant is of the position that the declaration submitted herewith meets the nexus requirements outlined in MPEP 716.01(b). On this basis, Applicant submits the declaration serves as objective evidence of non-obviousness which carries substantial weight under *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.* 776 F.2d 281, 305 (Fed. Cir. 1985).

Claims 3-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Davis in view of Chou'216.

Applicant submits Chou '216 fails to cure the deficiencies already noted in Davis. Because claims 3-6 depend upon claim 1, the combination of Davis and Chou '216 fails to teach all the elements of claims 3-6. Applicant submits claims 3-6 are therefore nonobvious in view of Davis and Chou '216 and requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claim 7 was rejected under 35 U.S.C. §103(a) as being unpatentable over Davis in view of Chou'216, further in view of Chou'580.

Applicant submits Chou '258 fails to cure the deficiencies already noted in Davis and Chou '216. Applicant submits claim 7 is therefore nonobvious in view of Davis, Chou '216 and Chou '258 for at least the reason that claim 7 depends upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claims 10 and 13-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Davis.

Applicant submits claims 10 and 13-16 are nonobvious in view of Davis for at least the reason that claims 10 and 13-16 depend upon claim 1. On this basis, Applicant requests removal of the 35 U.S.C. §103(a) rejection of these claims.

Claims 9, 19 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Davis in view of Colburn (Solid State Technology, 44(7) July 2001).

Claim 9

Applicant submits Colburn fails to cure the deficiencies already noted in Davis. Applicant submits claim 9 is nonobvious in view of Davis and Colburn at least for the reason that claim 9 depend upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of claim 9.

Claim 19

Applicant notes claim 19 is amended to depend upon claim 1, therefore this rejection is moot.

Claim 21

Applicant has canceled claim 21, rendering the rejection moot.

Claims 23 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over Davis in view of Chou'216, Chou'580 and Chen.

Applicant submits Chou '216, Chou '580 and Chen fail to cure the deficiencies already noted in Davis. Applicant submits claims 23 and 24 is nonobvious in view of Davis Chou '216, Chou '580 and Chen for at least the reason that claims 23 and 24 depend upon claim 1. Applicant therefore requests removal of the 35 U.S.C. §103(a) rejection of these claims.

CONCLUSION

Applicant respectfully requests examination of the above-identified application in view of the response.

For at least the foregoing reasons, Applicant submits that the rejections of the claims have been overcome herein, placing all pending claims in condition for allowance. Such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the above-identified application.

The Commissioner is authorized to charge or credit any deficiencies or overpayments in connection with this submission to Deposit Account No. 02-2666, and is requested to notify us of same.

Respectfully submitted,
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